

Does the knowledge of patients is important to store and dispose of the medications in a proper way?

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Background: Pharmaceutical products require proper storage and dispose in order to ensure that their quality is not compromised due to moisture and temperature. This study is done to clarify the relation between the patient who has educated about the proper storage and dispose of medicines, and the method where he will store and dispose the medicines. A 15-questions survey was created to examine possible correlations in patients, and it has handed out in three main pharmacies. According to the results, the high percentage of patients who keep the medicine in kitchen and bathroom are not informed. Also the large number of participants who dispose the medicines by trashing them to the toilet or sink, are not informed. This study shows that education of patients in terms of the good storage and proper dispose of drugs, are important to keep these medications with high quality and could greatly impact the environment and give a cleaner and healthier environment.

Keywords: Proper storage, proper dispose, pharmacies, medicines, environment

1. Introduction

Many people keep medications in bathrooms, which provide a humid environment that speeds up the breakdown process of medications [1]. The suitable way to store medicines is in a cool, no moisture place, and out of the reach of children [2]. Every year medications are also disposed of improperly presenting a risk to both humans and the environment. About one-third of all sold medications are unused [3, 4]. The most common ways patients dispose of medications in the Tripoli and Alkums area are putting them to the toilet or sink, or throwing them away. Because of many drugs have been found in groundwater, and drinking water proving hazardous to both humans and ecosystems [5]. In Libya, Ministry of Health has been proposed to limit the disposal of pharmaceuticals in sewage systems, and provide the means of controlled substance disposal through take-back programs. In February 2007 the White House Office of National Drug Control Policy (ONDCP) established guidelines for the disposal of prescription medications ONDCP guidelines are: take unused, unneeded or expired medications out of the original container, mix with an undesirable substance (such as coffee grounds), securely seal in impermeable containers, such as sealable bags, and throw into the trash [6]. ONDCP recommends only flushing if the label or patient information specifies to do so. Taking advantage of community pharmaceutical take-back programs is highly encouraged [7].

2. Materials and Methods

To understanding that whether educational background of patients in terms of medications storage and disposal is necessary in the Tripoli and Alkumes area by measuring the number of patients with expired or unwanted medication and assessing patient knowledge and current practice of storage and disposal of medications.

A 15-questions survey was created to examine possible correlations in patients.

- Survey asked questions pertaining to:
- Demographics such as age, race, gender, marital status, and level of education.
- Indication of knowledge for suitable medication storage and disposal, using the following questions:
- Has anyone ever told you the best place to store medications?
- Has anyone ever told you the right way to get rid of expired, unused, or unwanted medications?
- Current practice of medication storage and disposal, using the following questions:

- How often do you check the expiration date on your medications?
- Where do you store your medications?
- How do you dispose of expired medications?
- If there was a local medication drive to properly get rid of medications, would you bring your unused, unwanted, or expired medications to it?
- Patient surveys were handed out at 3 pharmacies.
- The surveys were analyzed for correlations.

3. Results and Discussion

Demographic Information:

- A total of 129 customers completed the survey.
- Gender.
- 100 were male.
- 29 were female.

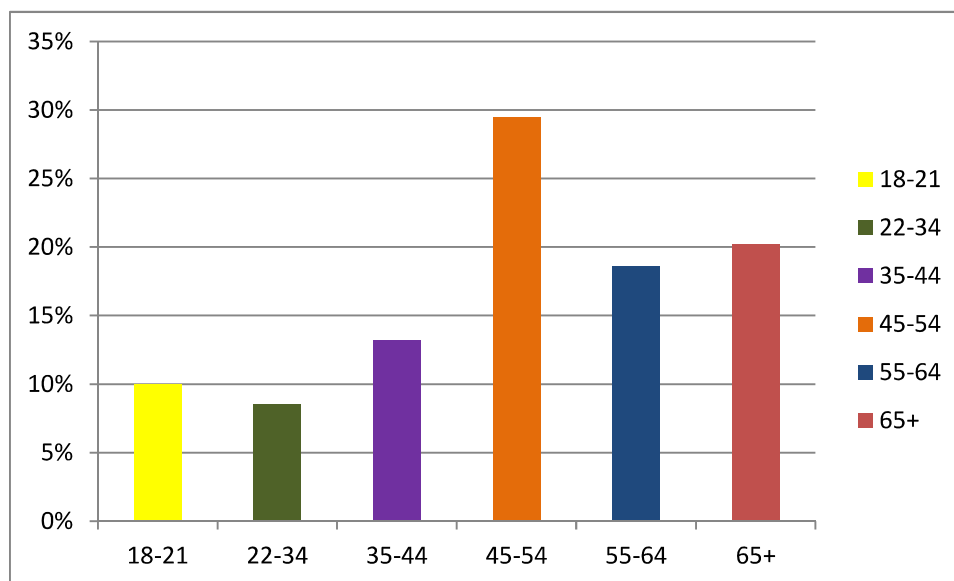


Figure 1 Different ages of participants

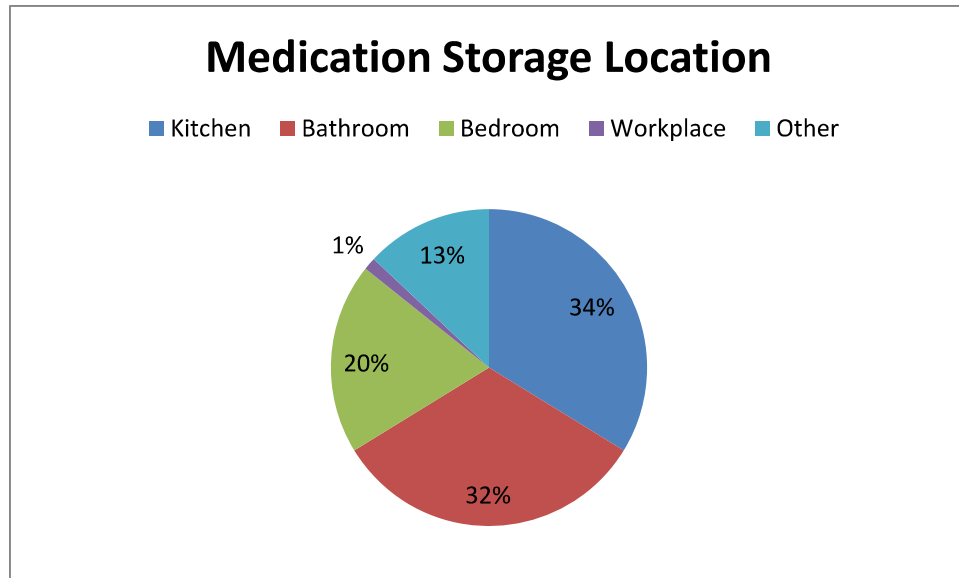


Figure 2 Different storage location of medications by participants

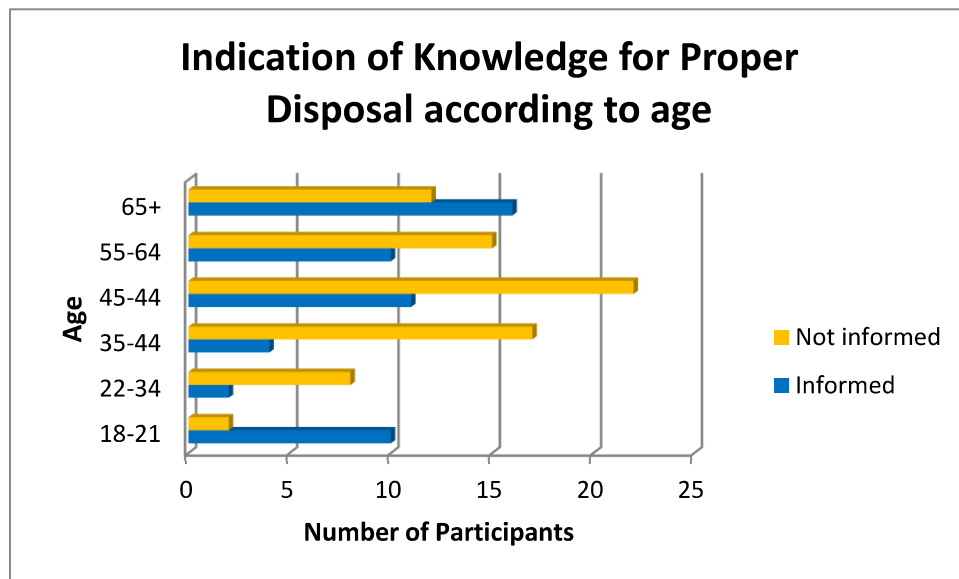


Figure 3 Knowledge for proper disposal according to age, where the younger population (18-21) and the elder population (65+) were the most likely to have been informed on proper medication disposal

These same populations were the most likely to have unwanted or unused medicines with 84% of 18-21-year-old patients and 50% of 65+ year old patients

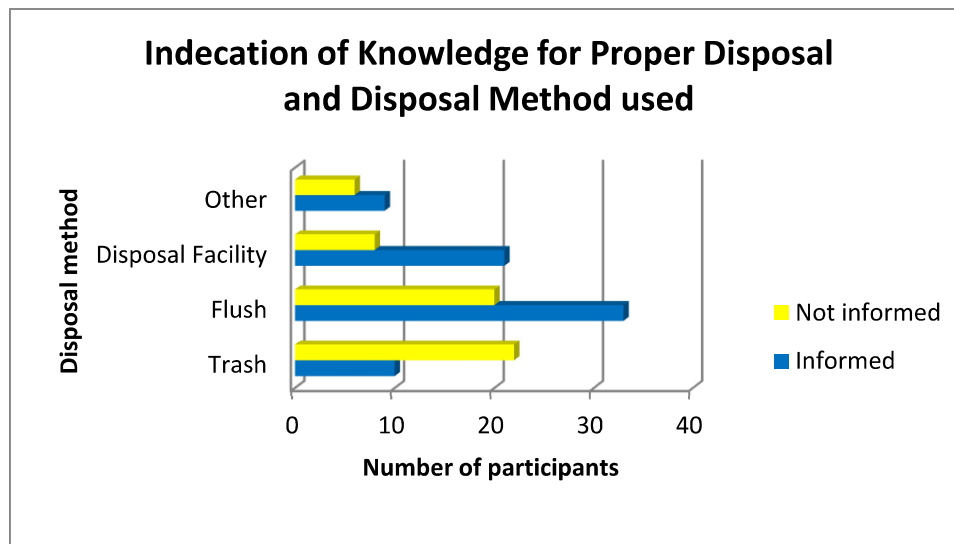


Figure 4 Disposal method used for both of informed participants and not informed participants

Many ages are involved in this study and the most participants age is between 45-54 years old with high percentage about 29% (Figure 1). Those who flushed medications tended to be informed regarding proper medication disposal. Patients who threw medications in the trash appear to be least informed about proper medication disposal. The most common methods of medication disposal were throwing in the trash and flushing down either the toilet or sink (Figure 2). According to results shown, there still are a high percentage of patients who do not have an information regarding proper medication storage and disposal, with almost 50% of patients surveyed both unsuitably storing and disposing of medications. In particular, the large number of young adults and adults over 65 years of age who indicated having unused or unwanted medications in their home implies the need to further educate these specific age groups as well as the others regarding the necessity of annual maintenance and disposal of medications (Figure 3). Approximately half (41.9%) of patients flushed expired, unwanted, or unused medications down the toilet/sink, and about 41.9% store medications in the bathroom (Figure 4). This is of great importance because a large portion of patients are currently storing and disposing of medications improperly. Trends were found indicating that patients tended to dispose of medications improperly even after having been informed of proper medication disposal. Nearly half of the patients that disposed of medications properly were not informed of the correct way to dispose of medications. There is a need to inform middle aged people of the proper way to dispose of medications due to the large amount of middle aged patients that indicated they were not informed

on the correct disposal method. About 129 patients surveyed, 105 (81.4%) indicated a willingness to participate in a local medication disposal drive/takeback program. Concerning patients who indicated having been informed on proper storage and disposal, we did not assess whether or not the patient was actually educated on the proper methods.

4. Conclusions

The overall great public interest discovered within only three surveyed pharmacies indicates just how important it is to consider a future medication disposal drive here in the Alkums area, or possibly even in Tripoli. The teaching of proper disposal methods could also greatly impact the environment and give a cleaner and healthier environment.

Acknowledgements

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